

disclosure within Roberts regarding attributes of either cutting wheel 19,27. Applicants also find no disclosure within Roberts regarding any use of the device disclosed by Roberts other than glass cutting. Indeed, Roberts discloses that the device is a specialized glass cutting device for cutting twin sheet “shatter proof” glass (see page 1, left column of Roberts).

Applicants respectfully submit that the term of art “glass cutter” when used with devices such as that disclosed by Roberts is a misnomer. The “cutting wheels” of Roberts actually do not and cannot cut glass in the sense of shearing the glass material. Glass is an amorphous solid that is not amenable to conventional cutting techniques (i.e., shearing techniques). Rather, force applied to a glass substrate through a “cutting wheel” creates a fissure within the glass that includes a pair of compression lines within the glass substrate. If sufficient bending force is subsequently applied to the glass substrate along the fissure, the substrate will fracture between the compression lines thereby creating a “cut”. Hence, the “cutting wheel” does not cut the substrate, but rather creates a fault line along which the substrate can be fractured with geometric predictability. Pages from a brochure describing glass cutting products offered by The Fletcher-Terry Company were provided by applicants in their response to the last Office Action. These pages describe the mechanism by which glass is “cut”.

The present application, in contrast, claims a hand-held *rotary cutter for cutting thin sheet materials* (e.g., paper, cloth, plastic).<sup>1</sup> The claimed geometry of the circular cutting blade makes it a proficient tool for cutting thin sheet materials. The safety,

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<sup>1</sup> Independent claim 1 (and dependent claims 2-12) of the present application claims a hand-held rotary cutter for cutting thin sheet materials that includes: (a) a handle having a hand grip portion; and (b) a circular cutting blade having a cutting edge, a diameter, and a thickness, wherein the cutting blade is pivotally mounted to the handle, and wherein the diameter of the cutting blade is not greater than fifteen times the thickness.

Independent claim 13 (and dependent claims 14-17) claim a hand-held rotary cutter for cutting thin sheet materials that includes: (a) a handle having a hand grip portion; and (b) a replaceable cutting blade and clip assembly, wherein the cutting blade includes a diameter and a thickness and the diameter is not greater than fifteen times the thickness; and the cutting blade is rotatably mounted on the clip; and wherein the cutting blade and clip assembly is attached to the handle and can be selectively replaced.

Independent claim 18 (and dependent claim 19) claims a hand-held rotary cutter for cutting thin paper products that includes: (a) a handle having a hand grip portion; and (b) a circular cutting blade having a cutting edge, a diameter, and a thickness, wherein the cutting blade is pivotally mounted to the handle; and wherein the diameter of the cutting blade is not greater than fifteen times the thickness.

Independent claim 20 (and dependent claims 21-24) claims a rotary cutter for cutting thin sheet materials that includes: (a) a support member; and (b) a circular cutting blade having a cutting edge, a diameter, and a thickness, wherein the cutting blade is pivotally mounted to the support member; and wherein the diameter of the cutting blade is not greater than fifteen times the thickness.

durability, ease of use, and quality of cut provided by the present rotary cutter are directly related to the claimed geometry of the cutting blade (e.g., the edge angle of the cutting blade, the diameter to thickness ratio of the cutting blade).

Nonanalogous Art:

“In order to rely on a reference as a basis for rejection of the applicant’s invention, the reference must either be in the field of the applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned” In re Oetiker, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992), citing In re Demininski, 230 USPQ 313, 315 (Fed.Cir. 1986)

In the present case, Roberts discloses a glass cutting device. Applicants respectfully submit that the Roberts reference, and glass “cutters” like that disclosed within Roberts, are nonanalogous art relative to the claimed *rotary cutter for cutting thin sheet materials*. As described above, glass cutters do not “cut” glass, but rather create a fault along which the glass substrate can predictably be fractured; i.e., they are scoring devices and will not cut thin sheet materials under normal circumstances. The present rotary cutter, on the other hand is a device for cutting (not *scoring*) thin sheet materials. The devices operate in fundamentally different ways. Hence, a scoring device such as that disclosed by Roberts is not in the applicant’s field of endeavor, which is cutting devices for thin sheet materials. Furthermore, a scoring device is not reasonably pertinent to the problem of cutting thin sheet material. For at least these reasons, applicants respectfully submit that the Roberts reference is nonanalogous and therefore not available to establish a prima facie case of obviousness.

U.S. Patent No. 2,265,955 “Roberts”:

When an application is submitted to the Patent and Trademark Office, statute and case law dictate that the burden of proof is on the PTO to establish a prima facie case of obviousness. Once the prima facie case has been established, then the burden of going forward with the evidence to rebut the prima facie case shifts to the applicant. Only the burden of going forward with evidence to rebut shifts to the applicant,

however. The burden of persuasion remains with the PTO. It is well-settled law that "the legal conclusion of obviousness must be supported by facts".<sup>1</sup>

In this instance, a prima facie case would necessarily have to establish that the teachings of Roberts render the claimed subject matter obvious. As stated above, Roberts discloses a "glass cutter" not a "rotary cutter for cutting thin sheet materials" as is claimed in the present application. Applicants have clearly identified the differences between the two types of devices. For at least those reasons, it is respectfully submitted that the claimed subject matter is not obvious in view of the cited reference.

In the rejection, the Examiner indicates that "[t]he reference appears to show the claimed details of the blade such as a diameter to width ratio of less than 10 and an edge angle of approximately 45 degrees. If the article is not approximately 45 degrees however it would appear to be an obvious matter for an artisan to specify such an angle which would create no new or unobvious results." The Examiner provides no support for his conclusion. In the interview of 8/15/02, Examiner Watts demonstrated that he believed Fig.5 of Roberts discloses a wheel that appears to have an edge angle of approximately 45 degrees. The Examiner indicated that he arrived at that conclusion by scaling the drawing. The Examiner's rejection appears, therefore, to be based on information scaled from the drawings of Roberts, and/or Examiner opinion.

Applicants respectfully submit that stated rejection and the Examiner's explanation in the Interview of 8/15/02 do not provide a prima facie case of obviousness. Section 2125 of the MPEP indicates that "PROPORTIONS OF FEATURES IN A DRAWING ARE NOT EVIDENCE OF ACTUAL PROPORTIONS WHEN DRAWINGS ARE NOT TO SCALE" and cites In re Wright, 193 USPQ 332 (CCPA 1977) as support. In In re Wright, the CCPA noted that the reference relied upon by the PTO contained no disclosure indicating that the drawings were to scale. The CCPA then stated that "[a]bsent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value".<sup>2</sup> The same situation exists in Roberts. There is nothing in Roberts indicating that the drawings are to scale.

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<sup>1</sup> In re Warner, 154 U.S.P.Q. 173,177 (CCPA 1967); In re Piasecki, 223 U.S.P.Q. 785 (Cir.Fed. 1984); Graham v. John Deere, 383 U.S. 1 (1966).

<sup>2</sup> In re Wright, 193 USPQ 332, 335 (CCPA 1977) citing In re Chitayat, 161 USPQ 224 (1969) as support.

In fact, there is no information at all regarding the edge angle of the wheel 27. Hence, information scaled off of the drawing is of little value and cannot be relied upon to establish obviousness.

Even if one does scale off of the drawing, however, the drawing does not show a wheel having an edge angle in or close to the broadest claimed edge angle range of “not less than forty degrees and not more than fifty degrees”. Applicants provide herewith a copy of Fig.5 from Roberts. Lines A and B are extensions of the edge surfaces of wheel 27. Line C is perpendicular ( $90^\circ$ ) to line A. Line D is at sixty degrees ( $60^\circ$ ) to line A. Line E is at 45 degrees ( $45^\circ$ ) to Line A. Line C was made using a right triangle, line E was made using a  $45^\circ$  triangle, and line D was made using a  $60^\circ$  triangle. Line D at sixty degrees ( $60^\circ$ ) to line A is quite clearly substantially co-linear with line B. Hence, the edge angle disclosed by Roberts (i.e.,  $60^\circ$ ) is significantly outside the broadest range of edge angles claimed in the present application. Consequently, there is no support within the drawing to support a prima facie case of obviousness. ||

Finally, even if one assumes arguendo the rejection does provide a prima facie case of obviousness, applicants have rebutted that case with facts. Regarding the Examiner’s statement that “[i]f the article is not approximately 45 degrees however it would appear to be an obvious matter for an artisan to specify such an angle which would create no new or unobvious results”, applicants refer to the materials pertaining to glass cutter wheels and the declaration provided in applicants’ response of 6 March 2002. The materials include pertinent pages from a Fletcher-Terry Company brochure describing glass cutting products. The “Wheel Specification Guide” contained therein clearly shows that the wheels available have edge angles between  $94^\circ$  and  $160^\circ$ . No wheels are offered having an edge angle even close to that claimed in the present application. In addition, applicants submitted a declaration from Mr. Vincent Kozyrski, an employee of The Fletcher-Terry Company. The Fletcher-Terry Company has been in the business of manufacturing glass cutting devices since 1868. In his declaration, Mr. Kozyrski states that bevel edge cutting wheels for a glass cutting device typically have an edge angle of approximately one hundred and twenty degrees ( $120^\circ$ ). Mr. Kozyrski, an employee of the Fletcher-Terry Company for twenty-nine years, further states that he is not aware of any bevel edge glass cutting wheels outside the range of eighty-eight to

one hundred and sixty-five degrees ( $88^{\circ}$  -  $165^{\circ}$ ) that are in use, or have been used, by the public. Hence, applicants have clearly established that it would not be obvious to one of skill in the art to modify or otherwise produce a cutting wheel in the claimed range of between forty degrees and fifty degrees.

The differences identified above between the claimed device and glass cutting devices are significant. Applicants respectfully direct the Examiner to the remarks above describing the physical and functional differences between the two types of devices. A scoring device such as the glass cutter will not practically function as a thin sheet material cutter. The demonstration provided by the undersigned attorney during the interview of 8/15/02, clearly showed this to be the case.

In addition, however, the characteristics of the claimed invention also make the present rotary cutter safer, more durable, and easier to use than presently available devices for cutting thin sheet materials. The specification as filed discloses problems associated with the prior art, advantages of the claimed invention, and the attributes of the claimed invention that make those advantages possible. For example, the specification describes that prior art rotary cutters having a large diameter and/or a razor type edge often present a safety problem for the user. The present rotary cutter, in contrast, utilizes a small diameter circular cutting blade that minimizes the chance for something to get pinched in the nip formed between the blade and the thin sheet material being cut. The circular cutting blade also has a much broader edge angle than cutting wheels having a razor-type cutting edge. United States Patent Nos. 6,330,750 B1 and 6,105,261 disclose that a razor-type blade typically has a cutting edge angle in the range of ten to thirty degrees ( $10^{\circ}$  -  $30^{\circ}$ ). The broad edge angle of the present cutting blade is significantly less apt to cut a compliant material (e.g., skin) than a cutting wheel having a razor-type cutting edge. In fact, it is the applicants' experience that the circular cutting blade of the present rotary cutter will not cut a compliant material (e.g., skin tissue) under normal operating conditions. Applicants provide herewith the declaration of Mr. Vincent T. Kozyrski of the Fletcher-Terry Company. In his declaration, Mr. Kozyrski states "I have on numerous occasions passed a cutting blade of the type described and claimed in U.S. Patent Application Serial No. 09/822,136 in rolling engagement with my skin using a force equal to or greater than that necessary to cut thin sheet materials. I

have never cut my skin using a cutting blade of the type described and claimed in U.S. Patent Application Serial No. 09/822,136.”

The present specification also discloses that the present invention rotary cutter provides significant advantages in durability over other types of thin sheet material cutters. For example, the specification identifies that rotary cutters with a thin, razor-edged cutting blade are susceptible to damage and dulling. United States Patent No. 6,330,750 B1 makes the same point in then context of scalpel blades having razor-type cutting edges. The claimed rotary cutter, in contrast, utilizes a relatively thick cutting blade with a broad edge angle that is quite durable. The relatively substantial thickness and the small diameter also allow for cost-effective manufacturing techniques that increase the hardness and therefore the durability of the cutting edge. Specifically, the cutting blade of the present rotary cutter is preferably coined from strip stock. The material in the region of the cutting edge is work hardened during the coining process and subsequently ground to the broad edge angle.

Applicants provide herewith a declaration from Mr. Vincent T. Kozyrski dated 6 September 2002 to factually establish the durability of the claimed device. In his declaration, Mr. Kozyrski describes the wear and durability tests conducted on the claimed rotary cutter blade, and a pair of retail rotary cutting blades having a razor-type cutting edge angle. All of the cutting blades were mounted within a computerized numerically controlled machine and operated under similar circumstances. The first retail rotary cutting wheel cut approximately 2212 feet of fabric before deteriorated cutting wheel performance caused the test to be halted. Upon inspection of the first retail cutting wheel, it was determined that the poor performance of the cutting blade was caused by chipping of the cutting blade apex. Similarly, the second retail rotary cutting wheel cut approximately 4027 feet of fabric before deteriorated cutting wheel performance caused the test to be halted. Here again, inspection revealed substantial chipping of the cutting blade apex. Two rotary cutting blades of the type described and claimed in United States Patent No. 09/822,136, in contrast, each cut 5280 feet of fabric before the test halted. At the conclusion of the tests, the cutting blades were both operating satisfactorily. In fact, inspection revealed that the cutting blades each had inconsequential wear on the cutting blade apex. In his declaration, Mr. Kozyrski states

“it is my opinion that the cutting blades could continue to operate significantly beyond the 5280 feet (1 mile) of fabric cutting performed in the aforesaid tests.” In short, the rotary cutter wheels of the claimed rotary cutter are substantially more durable than cutters having a razor-type edge.

The present rotary cutter device is also distinguishable from cutting devices having a razor-type cutting edge for other reasons. Applicants submit herewith materials entitled “Passenger Information” which was downloaded from the website of the Federal Aviation Administration (<http://cas.faa.gov/faq.html>). The FAA materials state that knives, cutting instruments, scissors, and straight razors are prohibited from being carried beyond passenger screening checkpoints. For purposes of conducting the interview of 8/15/02 with Examiner Watts, the undersigned attorney presented a rotary cutter of the type claimed in United States Patent No. 09/822,136 at the passenger screening checkpoints prior to boarding the flights to and from Washington D.C. Each time, the rotary cutter was inspected and allowed by the screening personnel within the carry-on briefcase of the undersigned attorney.

In short, applicants respectfully traverse the Examiner’s conclusion that the invention of claims 1-27 is obvious in view of Roberts. The differences between the present invention and a glass cutter like that disclosed by Roberts are significant and unobvious. The differences between the present invention and a cutter having a razor-type cutting edge are also significant and unobvious. Accordingly, applicants respectfully request the Examiner withdraw this rejection and allow existing claims 1-27, and new claims 28-30.

As applicants have traversed the rejection raised by the Examiner, it is respectfully requested that the Examiner withdraw the stated rejection, allow claims 1-30, and pass the present application on to issuance. In the event a fee in excess of the

amount provided for in the accompanying check is due, please charge our Deposit Order Account No. 13-0235.

Respectfully submitted,

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